



Research-Based Information: Exploding the Myths

Myths about learning science, technology, engineering and math are common but can be addressed by having the facts ready to share. Here are some resources to help counter common myths about STEM education.

Curiosity

If you hear students say, “I’m just not interested in math or science,” you might say that perhaps they aren’t interested yet. Curiosity is not a fixed quantity; it changes with new experiences. In a two-part video interview for *Doing What Works* (U.S. Department of Education, n.d.), Dr. Jon Star of Harvard University describes interest as a process. He says it can be sparked by instructional activities and nurtured by adult support. This nurturing can be as simple as helping students see connections between what happens in the classroom and what happens in the real world.

STEM and Lifelong Learning

Do students think STEM belongs only in regular school? A recent article in *American Scientist* explains that school is not where most Americans learn most of their science. As the authors (Falk & Dierking, 2010) explain:

The “school-first” paradigm is so pervasive that few scientists, educators or policy makers question it. This despite two important facts: Average Americans spend less than 5 percent of their life in classrooms, and an ever-growing body of evidence demonstrates that most science is learned outside of school.

There’s no predicting where curiosity, once ignited, might lead. Some 75 percent of Nobel Prize winners in the sciences report their passion for science was first sparked in non-school environments. (Friedman & Quinn, 2006).

Diversity Issues

It’s a myth that STEM activities only interest boys. Although fields like math, science and engineering were once dominated by males, the gender gap continues to close. Women now earn nearly half the bachelor’s degrees in math. Still, women continue to be underrepresented in math, science and engineering-related careers. Researchers suggest that self-confidence, more than ability, may be a factor in the gender difference (Azar, 2010).

Minority populations are also underrepresented in technical and scientific fields. While African Americans, Native Americans and Hispanics make up 28.5 percent of the U.S. population, they represent only 9.1 percent





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of college-educated Americans in the science and engineering workforce (Committee on Underrepresented Groups and the Expansion of the Science and Engineering Workforce Pipeline et al., 2010).

Offering STEM education in afterschool settings allows students who are typically underrepresented in the sciences to participate and get excited, encouraging them to pursue science and math studies and consider a career in STEM-related fields (Afterschool Alliance, 2010).

STEM and Future Careers

As our economy has undergone a shift from manufacturing to information and technology, career opportunities have also changed. A recent issue brief by Afterschool Alliance

(2010) highlights the trends: Between 1996 and 2006, the United States lost three million manufacturing jobs. During the same years, 17 million service sector jobs were created, specifically in the areas of health care, education, environment, security and energy (U.S. Bureau of Labor Statistics, 2007). From 2008-2018, many of the fastest-growing jobs in the service sector are and will be STEM related, in particular those involving scientific, technical and management consulting; computer systems design; and employment services (U.S. Bureau of Labor Statistics, 2009).

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